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# 4, 7TH MAIN MALLESWARAM, BANGALORE -3

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2019-05-22-56** **Date: 27-04-2019** |
| **Customer** | : | Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore. |
| **Address** | : | Dasarahalli Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements and development of NMH Extension in Bagalagunte Ward no.14 |
| **Agency** | : | Technical Manager (West),K.R,I,D,L, No.280,59th Cross 17th C Main Road,3rd Y Block Rajaji Nagara.Bangaluru-560010. |
| **Customer's Reference** | : | EE/DD/WO/401/18-19 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 25-04-2019 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 (Part 1,2 3,4,5, 6,11):1988<br>IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4<br>IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5<br>IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5<br>IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6 |
| **Date of test** | : | 25-04-2019 |
| **Environmental Conditions during test** | : | Temperature: 26°C<br>Humidity: 72% |

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | Fineness by dry sieving (%) | 2.0 | – |
| 2 | Finess by Air permeablity method ($m^2$/kg,Min) | 285.4 | 225$m^2$/kg, Min |
| 3 | Density (gm/cc) | 3.12 | – |
| 4 | Standard Consistency (%) | 29.5 | Not specified |
| 5 | Initial Setting time | 145 minutes | Not less than 30 minutes |
| 6 | Final Setting time | 240 minutes | Not more than 600 minutes |
| 7 | Soundness (Le Chatelier's Method) | 1.5mm | Not more than 10 mm |

**Note:**

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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Samples will be disposed after 90 days from the date of issue of test certificate

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**R RUDRAPRASAD**
Authorized Signatory
**Technical Manager**

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2019-05-22-56** **Date: 23-05-2019** |
| **Customer** | : | Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore. |
| **Address** | : | Dasarahalli Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements and development of NMH Extension in Bagalagunte Ward no.14 |
| **Agency** | : | Technical Manager (West),K.R,I,D,L, No.280,59th Cross 17th C Main Road,3rd Y Block Rajaji Nagara.Bangaluru-560010. |
| **Customer's Reference** | : | EE/DD/WO/401/18-19 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 25-04-2019 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 6, Determination of Compressive Strength, Clause 6 |
| **Date of test** | : | 25-04-2019 |
| **Environmental Conditions during test** | : | Temperature: 26˚C<br>Humidity: 72% |

**Compressive Strength**

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | 3 Days | 28.5N/mm$^2$ | Not less than 27 N/mm$^2$ |
| 2 | 7 Days | 39.0N/mm$^2$ | Not less than 37 N/mm$^2$ |
| 3 | 28 Days | 58.5N/mm$^2$ | Not less than 53 N/mm$^2$ |

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**Technical Manager**

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2019-05-22-56** **Date: 27-04-2019** |
| **Customer** | : | Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore. |
| **Address** | : | Dasarahalli Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements and development of NMH Extension in Bagalagunte Ward no.14 |
| **Agency** | : | Technical Manager (West),K.R,I,D,L, No.280,59th Cross 17th C Main Road,3rd Y Block Rajaji Nagara.Bangaluru-560010. |
| **Customer's Reference** | : | EE/DD/WO/401/18-19 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample condition** | : | Satisfactory |
| **Date of Receipt** | : | 25-04-2019 |
| **Sample Type** | : | 40mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 25-04-2019 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:**

**Total weight taken : 15000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 80 mm | 0 | 0 | 0.0 | 100 | 100 |
| 2 | 40 mm | 244 | 244 | 1.6 | 98.4 | 90-100 |
| 3 | 20 mm | 5432 | 5676 | 37.8 | 62.2 | 30-70 |
| 4 | 10 mm | 4332 | 10008 | 66.7 | 33.3 | 10-35 |
| 5 | 4.75 mm | 4654 | 14662 | 97.7 | 2.3 | 0-5 |
| 6 | Pan | 338 | 15000 | 100.0 | 0 | --- |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2019-05-22-56** **Date: 27-04-2019**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 12.4 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 11.8 | |
| 3 | Specific Gravity | 2.68 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.48 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.52 | – |
| 6 | Water Absorption(%) | 0.22 | – |

**Note:**
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**Technical Manager**

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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2019-05-22-56** **Date: 27-04-2019**

### PHYSICAL PROPERTIES

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 13.2 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 12.6 | |
| 3 | Specific Gravity | 2.66 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.54 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.58 | – |
| 6 | Water Absorption(%) | 0.22 | – |
| 7 | Aggregate crushing Value(%) | 24.5 | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8 | Aggregate Impact Value(%) | 22.8 | 30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface. |

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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2019-05-22-56** **Date: 27-04-2019**

**Customer** : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

**Address** : Dasarahalli Sub Division, BBMP, Bangalore.

**Project Name** : Improvements and development of NMH Extension in Bagalagunte Ward no.14

**Agency** : Technical Manager (West),K.R,I,D,L, No.280,59th Cross 17th C Main Road,3rd Y Block Rajaji Nagara.Bangaluru-560010.

**Customer's Reference** : EE/DD/WO/401/18-19

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 25-04-2019

**Sample Type** : Fine Aggregate

**Reference to BIS codes** : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

**Date of test** : 25-04-2019

**Total weight taken** : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 27 | 27 | 2.7 | 97.3 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 55 | 82 | 8.2 | 91.8 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 239 | 321 | 32.1 | 67.9 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 205 | 526 | 52.6 | 47.4 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 203 | 729 | 72.9 | 27.1 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 191 | 920 | 92.0 | 8.0 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 80 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |

**Result :The tested Sample Conforms to Grading Zone II**



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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2019-05-22-56** **Date: 27-04-2019**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.5 | – |
| 2 | Specific Gravity | 2.59 | – |
| 3 | Material finer than 75 micron(%) | 6.9 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2019-05-22-56** **Date: 27-04-2019**

**Customer** : Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.

**Address** : Dasarahalli Sub Division, BBMP, Bangalore.

**Project Name** : Improvements and development of NMH Extension in Bagalagunte Ward no.14

**Agency** : Technical Manager (West),K.R,I,D,L, No.280,59th Cross 17th C Main Road,3rd Y Block Rajaji Nagara.Bangaluru-560010.

**Customer's Reference** : EE/DD/WO/401/18-19

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 25-04-2019

**Sample Type** : Fine Aggregate

**Reference to BIS codes** : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

**Date of test** : 25-04-2019

**Total weight taken** : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 27 | 27 | 2.7 | 97.3 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 55 | 82 | 8.2 | 91.8 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 239 | 321 | 32.1 | 67.9 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 205 | 526 | 52.6 | 47.4 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 203 | 729 | 72.9 | 27.1 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 191 | 920 | 92.0 | 8.0 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 80 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |
| **Result :The tested Sample Conforms to Grading Zone II** | | | | | | | | | |



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